

(ii) activating the resultant reconstructed embryo;
(iii) culturing said activated, reconstructed embryo; and
(iv) isolating and culturing inner cell mass cells obtained from said cultured activated, reconstructed embryo to obtain a cultured inner cell mass cell.

21. (NEW) The method of claim 20, wherein said diploid non-human mammalian differentiated cell in the G1 phase of the cell cycle is a fibroblast cell.

22. (NEW) The method of claim 20, comprising culturing said activated, reconstructed embryo to form a blastocyst, and culturing inner cell mass cells obtained from said blastocyst to produce a cultured inner cell mass cell.

23. (NEW) The method of claim 20, wherein said nucleus is genetically modified.

24. (NEW) The method of claim 23, wherein the genome of said genetically modified nucleus comprises an insertion, deletion, or modification.

25. (NEW) The method of claim 24, wherein said genetically modified nucleus comprises an exogenous DNA.

26. (NEW) The method of claim 20, wherein said nucleus is isolated from a mammal selected from the group consisting of sheep, cows, pigs, horses, rabbits, rodents, mice, and rats.

27. (NEW) The method of claim 26, wherein said nucleus comprises at least one genetic modification.

28. (NEW) The method of claim 20, wherein said nucleus is isolated from an ungulate.

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29. (NEW) The method of claim 20, wherein said diploid non-human mammalian differentiated cell in the G1 phase of the cell cycle is expanded *in vitro* prior to step (i).

30. (NEW) method of claim 20, wherein the cultured inner cell mass cell is a cow or pig inner cell mass cell.

31. (NEW) A method of producing a non-human mammalian embryo by nuclear transfer comprising:

- (i) transfer of a nucleus of a non-human mammalian cell into an unactivated, enucleated metaphase II-arrested oocyte of the same species as the donor cell nucleus;
- (ii) activation of the recipient oocyte containing the donor cell nucleus; and
- (iii) incubation of the activated oocyte to provide an embryo;

wherein the donor cell nucleus is from a non-human mammalian differentiated cell in the G1 phase of the cell cycle.

32. (NEW) The method of claim 31, wherein said non-human mammalian embryo is selected from the group consisting of sheep, cows, pigs, horses, rabbits, rodents, mice, and rats.

33. (NEW) The method of claim 31, wherein said non-human mammalian embryo is an ungulate.

34. (NEW) A method of producing a non-human mammalian embryo by nuclear transfer comprising:

- (i) transfer of a nucleus of a non-human mammalian cell into an unactivated, enucleated metaphase II-arrested oocyte of the same species as the donor cell nucleus;
- (ii) activation of the recipient oocyte containing the donor cell nucleus; and

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